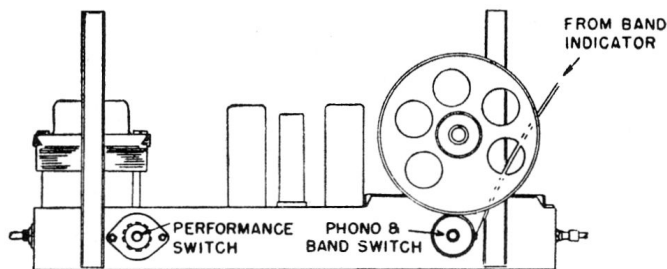


BAND INDICATOR ON CABINET SHOULD BE IN PHONO POSITION WHEN BAND SWITCH IS IN FULL COUNTERCLOCKWISE POSITION.



BAND SWITCH POSITIONS AND TUNING RANGE:

- 1st—Phonograph Position
- 2nd—560-170 m,—535-1750 kc (Special)
- 3rd—560-170 m,—535-1750 kc (Normal)
- 4th—123-40 m,—2.45-7.6 Mc
- 5th—32.5—28.8 m,—9.22—10.41 Mc Bandsread
- 6th—29.0—24.6 m,—10.32—12.17 Mc Bandsread
- 7th—20.5—13.5 m,—14.6—22.1 Mc Bandsread

INTERMEDIATE FREQUENCY: 455 kc.

AUDIO OUTPUT: 3.5 watts. **Philips PH103**

ALIGNMENT OF RECEIVER

All adjustments may be made with the receiver in the cabinet. Turn the volume control to the full clockwise position for maximum output and the tone control to the extreme counterclockwise position. Set the performance

switch to the left position. With the variable capacitor fully closed, adjust the dial pointer on the beginning of the dial scale to the left of the 550 kc calibration mark.

EQUIPMENT REQUIRED

OUTPUT INDICATOR: A high resistance A.C. voltmeter and an output transformer.

SIGNAL GENERATOR: A Generator capable of supplying modulated signals between 455 kc and 22 Mc.

Equipment Connections and Alignment Procedure

OUTPUT INDICATOR: Connect the A.C. voltmeter to the external loudspeaker connection located in the rear of the receiver. During the alignment, keep the output below 1.25 A.C. volts across this jack. If the meter used does not satisfactorily indicate 1.25 volts, connect the secondary of an output transformer to the external speaker connection and connect the A.C. voltmeter across the primary. When using the latter method, the maximum output reading

should be kept below 30 A.C. volts. When the output indication increases, regulate the signal generator attenuator to restore the original indication.

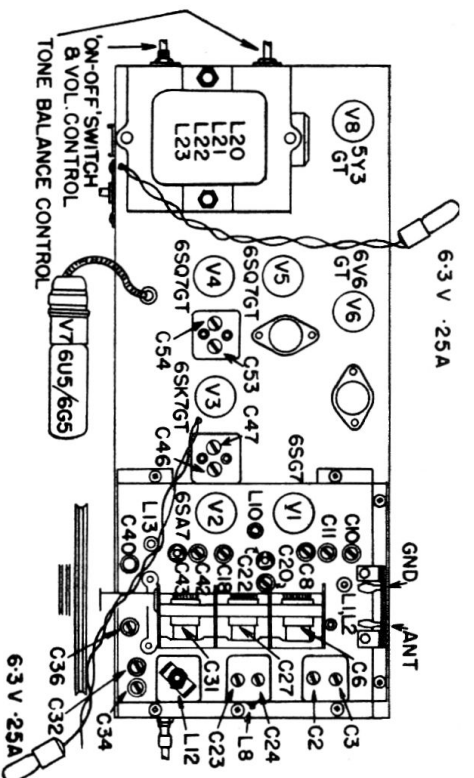
SIGNAL GENERATOR: Connect the ground lead of the signal generator to the "Ground" jack in the rear of the receiver and the output lead to the points indicated in the chart below, in series with the specified resistor or capacitor.

| SIGNAL GENERATOR | | | RECEIVER | | | |
|------------------|---|-----------|--------------|------------------|-----------|---|
| Operation Steps | Output Connections to Receiver | Frequency | Range Switch | Tuning Capacitor | See Notes | Adjust in Stated Order for Maximum Output |
| 1 | To 6SK7GT Control Grid (4) Through .05 mfd. Capacitor | 455 kc | Pos. 3 | Min | A | 1st I.F. Trimmers C54, C58 |
| 2 | To Stator C27 Through .05 mfd. Capacitor | 455 kc | Pos. 3 | Min | A | 1st I.F. Trimmers C47, C46 |
| 3 | To Antenna Contact Through 200 mmfd. Capacitor | 570 kc | Pos. 3 | 570 kc | A | Broadcast Padder C34 |
| 4 | To Antenna Contact Through 200 mmfd. Capacitor | 1600 kc | Pos. 3 | 1600 kc | B | BC-RF Trimmer C32 BC-RF Trimmer C28 BC-Ant. Trimmer C2 |
| 5 | To Antenna Contact Through 400 ohms Resistance | 7.0 Mc | Pos. 4 | 7.0 Mc | C | SW-Osc. Trimmer C36 SW-RF Trimmer C24 SW-Ant. Trimmer C8 |
| 6 | To Antenna Contact Through 400 ohms Resistance | 2.9 Mc | Pos. 4 | 2.9 Mc | D | SW-Osc. Coil L12 |
| 7 | To Antenna Contact Through 400 ohms Resistance | 21.5 Mc | Pos. 7 | 21.5 Mc | C | BS-Osc. Trimmer C48 |
| 8 | To Antenna Contact Through 400 ohms Resistance | 16.2 Mc | Pos. 7 | 16.2 Mc | D | BS-Osc. Coil L13 |
| 9 | To Antenna Contact Through 400 ohms Resistance | 21.5 Mc | Pos. 7 | 21.5 Mc | E | BS-RF Trimmer C22 BS-Ant. Trimmer C11 |
| 10 | To Antenna Contact Through 400 ohms Resistance | 16.2 Mc | Pos. 7 | 16.2 Mc | F | BS-RF Coil L10 BS-Ant. Coil L12 |
| 11 | To Antenna Contact Through 400 ohms Resistance | 11.6 Mc | Pos. 6 | 11.6 Mc | C | BS-Osc. Trimmer C42 BS-RF Trimmer C20 BS-Ant. Trimmer C10 |
| 12 | To Antenna Contact Through 400 ohms Resistance | 9.6 Mc | Pos. 5 | 9.6 Mc | C | BS-Osc. Trimmer C40 BS-RF Trimmer C18 BS-Ant. Trimmer C8 |

ALIGNMENT NOTES

- Note "A"—After step 2 has been completed, do not make any further adjustments to the 2nd I.F. Trimmers C54 and C58.
- Note "B"—After operation 4 has been completed, return to 570 kc and repeat operation 3, then repeat operation 4.
- Note "C"—Unscrew oscillator trimmer capacitor to minimum capacity (counter clockwise). Turn adjustment clockwise until first output

- peak is obtained. Make adjustments using this peak.
- Note "D"—Check high frequency end of dial for accuracy; adjust oscillator trimmer slightly if necessary.
- Note "E"—Rock tuning capacitor while adjusting antenna trimmer for maximum output.
- Note "F"—Repeat operation 9.



DRUM SCALE DIVISIONS

The dial of this model is permanently fastened to the cabinet; therefore, the removal of the chassis necessitates other means of calibrating the receiver. Located on the tuning drum is an 0 to 100 scale. This scale is read from the edge of the bracket near its face and is to be used in aligning the receiver, when the chassis has been removed from the cabinet.

The conversion of dial scale readings to gang condenser drum scale readings for alignment frequencies is given

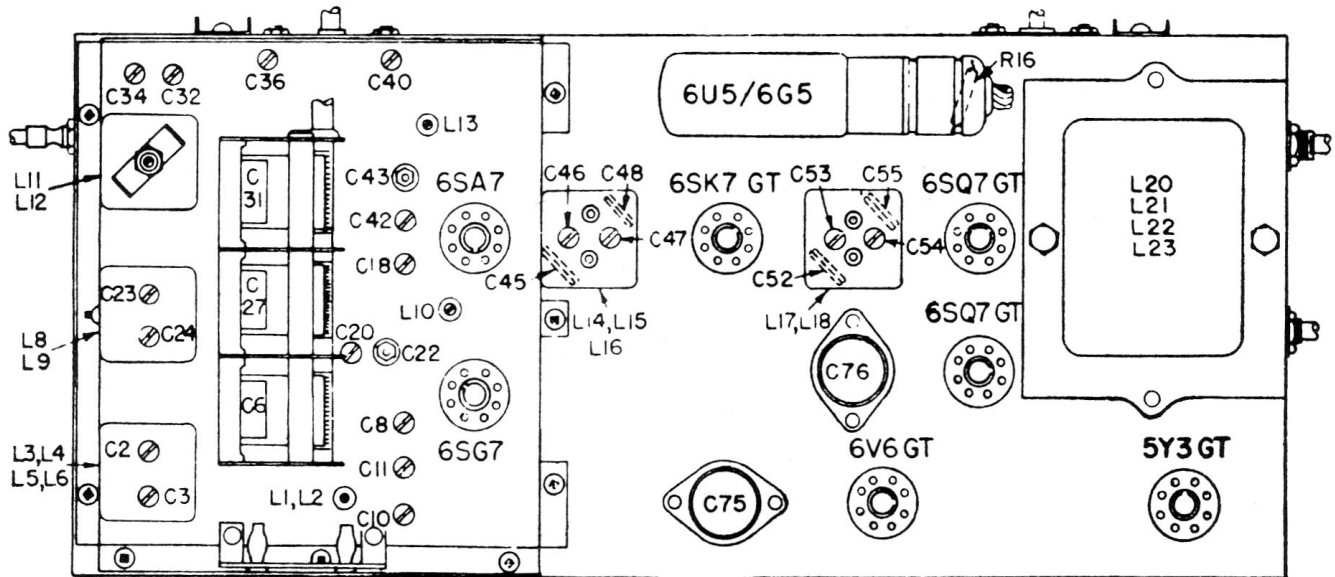
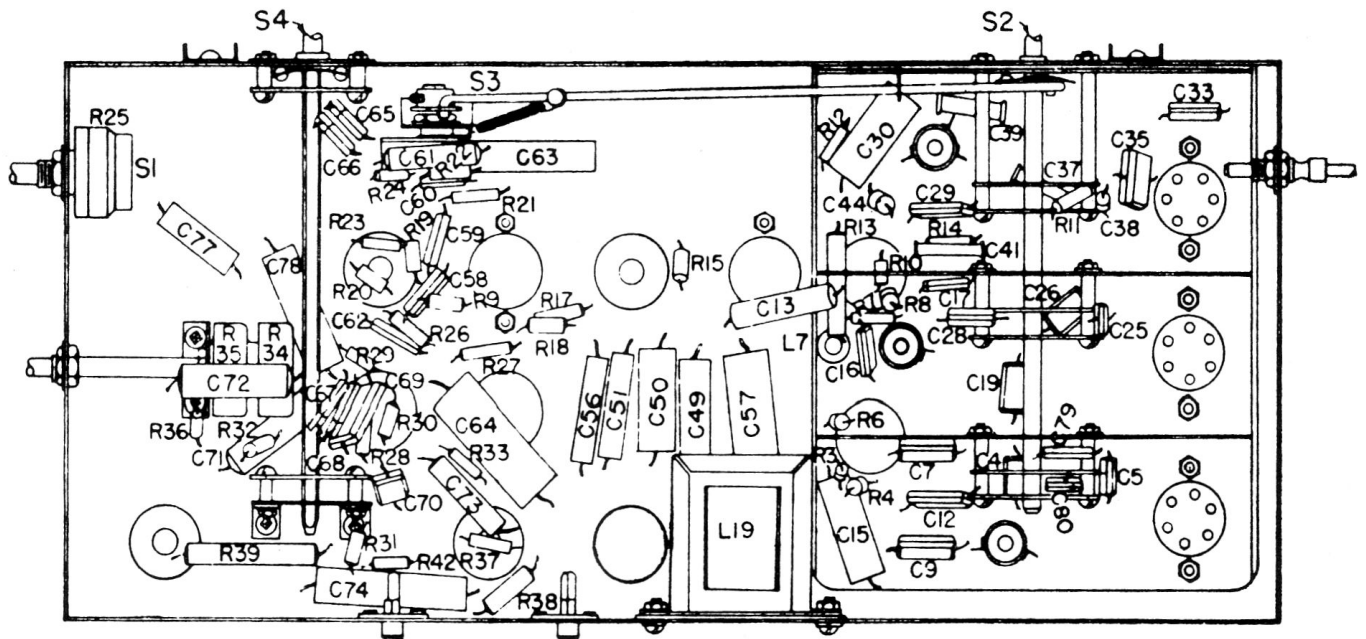
| Band Switch Position | Frequency | Drum Scale Reading |
|----------------------|------------------------------|----------------------|
| 2 & 3 Broadcast | 570 kc 1000 kc 1600 kc | 10.6 58.4 88.9 |
| 4 Short Wave | 2.9 Mc 5.0 Mc 7.0 Mc | 22.9 65.1 88.4 |
| 7 Bandspread | 16.2 Mc 21.5 Mc | 25.9 90.9 |
| 6 Bandspread | 11.6 Mc | 73.7 |
| 5 Bandspread | 9.6 Mc | 46.8 |

Zero on drum scale corresponds to gang condenser fully closed.

IMAGE FREQUENCY

When the receiver is properly aligned, the maximum output corresponding to the image frequency should occur when the receiver is tuned to a frequency approximately 900 kc lower than the signal frequency. It may be necessary to increase the value of input signal when it is desired to make this test.

LOCATION OF PARTS



TUBE SOCKET VOLTAGES

| PIN | 6SG7 | 6SA7 | 6SK7 | 6SQ7 Detector | 6SQ7 2nd A.F. | 6V6 | 5Y3 | 6U5 |
|-----|--------|--------|--------|------------------|------------------|--------|--------|--------|
| 1 | — | — | — | — | — | — | — | 6.3 ac |
| 2 | — | — | — | — | — | — | 305 | 21 |
| 3 | — | 245 | — | 1.25 | 13.2 | 260 | — | * |
| 4 | * | 95 | * | — | — | 245 | 300 ac | 245 |
| 5 | — | — | 3 | — | — | — | — | — |
| 6 | 105 | — | 100 | 140 | 160 | — | 300 ac | — |
| 7 | 6.3 ac | 6.3 ac | 6.3 ac | 6.3 ac | 6.3 ac | 6.3 ac | — | — |
| 8 | 245 | * | 225 | — | — | 11 | 305 | — |

Note: * Bias obtained from AVC system.
 Values specified obtained by using a 20,000 ohm per volt
 voltmeter.
 All voltages measured to chassis.

All voltages are D.C. positive except where noted.
 All tubes must be in their sockets during test.
 Readings may vary plus or minus 10% due to line
 voltage fluctuations.